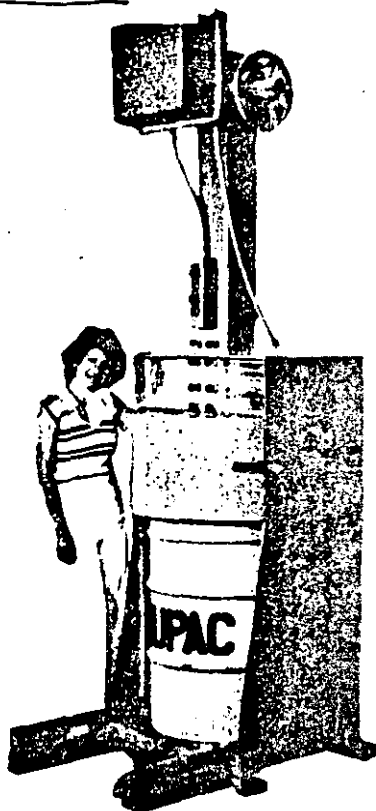


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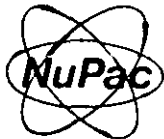
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## isotopes & radiation

### COMPLIANCE

#### Radiography firm loses license

Official action toward American X-Ray and Inspection Inc., of Farmington Hills, Mich., continued with the May 19 revocation of the radiography firm's license following a Nuclear Regulatory Commission investigation into the company's inadequate radiation protection practices. In earlier action, the NRC had suspended the license on February 28 (NN, April 1980, p. 75).

Results of the NRC investigation revealed that some 43 individuals may have received unnecessary radiation exposures as a result of American X-Ray's faulty protection practices. Of those, at least 10 individuals received estimated radiation exposures in excess of NRC guidelines for exposures to members of the public, although all doses were well within the limit for workers in the nuclear industry. The exposures occurred during a 30-month period in 1977-79, at two business locations adjacent to the American X-Ray facility.

### i&r briefs

**AERIAL RADIATION SURVEYS** were conducted via helicopter in mid-May in Gratiot and Bay counties in Michigan. The survey is part of a review of the Velsicol Chemical Company rare earth processing facility conducted by the Nuclear Regulatory Commission and other state and federal agencies. Ore wastes from the facility containing radiation were buried in nearby areas, and the aerial survey was designed to identify any unknown burial sites. NRC ground surveys and environmental surveys of the plant and known burial sites have found no areas of excessive radiation that represent an environmental or health hazard.

**A RADIATION EFFECTS INFORMATION HOTLINE** has been established in Indiana by an independent group of specialists in radiation protection, enabling anyone in the state to call toll-free to obtain information on the effects of radiation. All questions will be answered by volunteer health physicists. The program is being funded by a grant from the Health Physics Society. The toll-free number is 800-323-1364. A similar program was established in Illinois last year (NN, November 1979, p. 110).

The NRC investigation identified seven violations of NRC regulations. Three were associated with the exposures received at the adjacent businesses. American X-Ray was also cited for unauthorized transfer of its NRC license and licensed radiation material; use of American X-Ray equipment by an unauthorized company; failure to maintain complete records of radiography operations; and unauthorized transportation of radiography sources in company-owned cars.

### RESEARCH

#### New technique in soft-tissue imaging

A new radiography technique that shows particular promise in the field of soft-tissue imaging has been demonstrated by a team of scientists at Argonne National Laboratory, Argonne, Ill. The new technique—proton radiography—is sensitive enough to detect abnormalities that cannot be observed with x rays, such as valvular insufficiencies of the heart.

The new technique uses accelerated protons rather than x rays to penetrate specimens and to produce images of their internal structures. In such a procedure, the protons lose more energy as they pass through denser regions. Thus, regions of greater or lesser density than the rest of an organ—such as a tumor—can be easily detected.

A practical proton radiography system would require construction of a small proton synchrotron at a clinic, plus other support equipment. Studies conducted at Argonne have shown that such a system could be designed and built at a cost comparable to that of many sophisticated x-ray systems in use at modern hospitals. Scientists envision that several years of development are needed, however, before the technique can be made available for use in clinics.